

Amendments to the Drawings

The attached sheet of drawings includes no changes to the drawing figure itself, but merely removes the designation "FIG. 1", because it is the only drawing figure.

Attachment: Replacement Sheet

REMARKS

Claims 1-7 and 10-16 are presented for the Examiner's review and consideration. Claims 1, 2, 5, 7, 10, 11, 14, and 16 have been amended. Claims 8, 9, 17, and 18 are canceled. Applicant believes the claim amendments and accompanying remarks serve to clarify the present invention.

Drawings

The drawing was objected to because the single drawing is labeled "Fig. 1" which should be deleted, since it is the only drawing in the application. In response, Applicant has provided herewith a Replacement Sheet with the drawing unlabeled.

Specification

The disclosure was objected to because the specification refers to "Fig. 1" which should be replaced with "the figure". In response, Applicant has amended paragraphs 0025 and 0028 accordingly.

35 U.S.C. §103 Rejection

Claims 1-7 and 10-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,113,795 to Subramaniam *et al.* ("Subramaniam"). In response, Applicant respectfully submits that this rejection should be withdrawn.

Subramaniam discloses a particle recovery system 10 having a feed section 12, a precipitation unit 14, and a particle separation section 16. (column 4, lines 50-53). In operation, flowing carbon dioxide is flowed to the precipitation chamber 32 until the pressure within the chamber reaches a predetermined level which is selected based upon the critical temperature of the antisolvent. (column 5, lines. 54-58). When the pressure and temperature within chamber 32 are stabilized, the drug-containing solution (i.e., the desired drug dissolved in a solvent) is introduced via pump 18 into chamber 32 through the inner tube (which has an inner diameter of about 0.152 mm) of nozzle 40. Supercritical CO₂ is simultaneously flowed through the annulus of the nozzle (i.e., the converging-diverging section with an effective throat opening of 0.165 mm), dispersing the drug solution into tiny droplets. The supercritical

carbon dioxide functions as an antisolvent for the drug, selectively extracting the solvent from the spray droplets, thereby causing the drug to precipitate as small particles in the high-pressure chamber. The supercritical effluent from chamber 32 is then transported and fed to the high pressure separation vessel 42 via line 80. Referring to FIG. 2, the feed stream (which contains the solvent, CO₂, and drug particles) enters through inlet 62 and into filter 56. Pure CO₂ (or other fluid or gas which is free of the organic solvent, such as pure helium or nitrogen) simultaneously enters through inlet 66 into chamber 58. Because the stream within chamber 58 (and thus outside filter 56) does not contain any solvent, a concentration gradient is created, thus causing the solvent within the feed stream to diffuse through membrane 70 and tube 72 and to be carried out of chamber 58, through outlet 68. As best shown in FIG. 3, the solid drug particles within the feed stream do not pass through membrane 70 and tube 72, thus allowing collection of those particles. (column 6, lines 1-34).

As such, Subramaniam teaches a system that removes a drug which is dissolved in a solvent.

In contrast, Applicant discloses and claims a method for disentangling filamentary nanocarbon. (¶0027). According to the method of the present invention, a quantity of nanofibers to be processed is introduced into a pressure vessel. Near-supercritical CO₂ is then introduced into the pressure vessel and is utilized to effect the desired process upon the filamentary nanocarbon. For example, a quantity of filamentary nanocarbon can be effectively debulked, de-agglomerated and disentangled by agitating the mixture within the pressure vessel. The CO₂ is then released from the pressure vessel and the filamentary nanocarbon is collected during the release. The filamentary nanocarbon thus collected exhibits a dramatic reduction in volume. (¶0029).

Based on the foregoing, Applicant respectfully contends that Subramaniam fails to teach all the elements in amended independent claims 1 and 10. Accordingly, Applicant submits that claims 1 and 10 are patentable over the cited reference. Based on at least their dependency, Applicant submits that claims 2-7 and 11-16 are patentable as well.


Other Claim Amendments

In several claims, Applicant has amended "CO2" to "CO₂".

Conclusion

In light of the foregoing, this application is now in condition for allowance or is at least in better form for appeal. If any questions remain regarding this response or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

Respectfully submitted,



Christopher J. Menke, Reg. #53,316

Customer Number: 26902
AFMC Law Office, Intellectual Property Law Division
2240 B Street, Suite D18
Wright-Patterson AFB, Ohio 45433
Tel: 937-904-5031; Fax: 937-255-3733